

## Claims

1. A process for the preparation of alkylaryl compounds by
- 5 a) reaction of a C<sub>4</sub>/C<sub>5</sub>-olefin mixture over a metathesis catalyst to prepare a C<sub>4-8</sub>-olefin mixture comprising 2-pentene, and optional removal of the C<sub>4-8</sub>-olefin mixture,
- 10 b) removal of from 5 to 100% of the 2-pentene present in stage a) and subsequent reaction over an isomerization catalyst to give a mixture of 2-pentene and 1-pentene which is returned to stage a),
- 15 c) dimerization of the C<sub>4-8</sub>-olefin mixture obtained in stage b) following removal in the presence of a dimerization catalyst to give a mixture containing C<sub>8-16</sub>-olefins, removal of these C<sub>8-16</sub>-olefins and optional removal of a partial stream thereof,
- 20 d) reaction of the C<sub>8-16</sub>-olefin mixtures obtained in stage c) or of the partial stream with an aromatic hydrocarbon in the presence of an alkylation catalyst to form alkyl aromatic compounds where, prior to the reaction, 0 to 60% by weight, based on the C<sub>8-16</sub>-olefin mixtures obtained in stage c), of linear olefins may additionally be added,
- 25 e) optional sulfonation of the alkyl aromatic compounds obtained in stage d) and neutralization to give alkylarylsulfonates, where, prior to the sulfonation, 0 to 60% by weight, based on the alkyl aromatic compounds obtained in stage d), of linear alkylbenzenes may additionally be added if no admixing has taken place in stage d),
- 30 f) optional mixing of the alkylarylsulfonates obtained in stage e) with 0 to 60% by weight, based on the alkylarylsulfonates obtained in stage e), of linear alkylarylsulfonate, if no admixing has taken place in stages d) and e).
- 35 2. The process according to claim 1, wherein, in at least one of stages d), e) and f), 5 to 60% by weight, in each case based on the mixtures present in the

preceding stage, of the linear compounds are added, and the sum of the additions is not more than 80% by weight.

- 5 3. The process according to claim 1 or 2, wherein the metathesis catalyst in stage a) is chosen from compounds of a metal of group VIb, VIIb or sub-group VIII of the Periodic Table of the Elements and/or, in stage b), a dimerization catalyst is used which comprises at least one element of sub-group VIII of the Periodic Table of the Elements.
- 10 4. The process according to any of claims 1 to 3, wherein the dimer-olefin mixtures obtained in stage b) have an average degree of branching in the range from 1 to 2.5.
- 15 5. The process according to any of claims 1 to 4, wherein the C<sub>4-8</sub>-olefin mixture introduced into stage c) comprises 0 to 10 mol% of butenes, 10 to 40 mol% of pentenes, 60 to 80 mol% of hexenes, 5 to 30 mol% of heptenes and 0 to 15 mol% of octenes, the total amount of which is 100 mol%.
- 20 6. The process according to any of claims 1 to 5, wherein the C<sub>1-16</sub>-olefin mixture introduced into stage d) and/or the partial stream comprises less than 5 mol% of C<sub><10</sub>-olefins, 5 to 15 mol-% of C<sub>10</sub>-olefins, 35 to 55 mol% of C<sub>11</sub>-olefins, 25 to 45 mol% of C<sub>12</sub>-olefins, 5 to 15 mol% of C<sub>13</sub>-olefins and less than 5 mol% of C<sub>>13</sub>-olefins, the total amount of which is 100 mol%.
- 25 7. The process according to any of claims 1 to 6, wherein, in stage c), an alkylation catalyst is used which leads to alkyl aromatic compounds which have 1 to 3 carbon atoms with an H/C index of 1 in the alkyl radical.
- 30 8. An alkylaryl or alkylarylsulfonate obtainable by a process according to claims 1 to 7.
9. The use of alkylarylsulfonates according to claim 8 as surfactants.
- 35 10. A detergent or cleaner comprising, besides customary ingredients, alkylarylsulfonates according to claim 8.